

AMENDMENTS TO THE CLAIMS

1. – 25. (Cancelled)

26. (new) A process for monitoring exogenous nucleic acid in transit, the nucleic acid having been introduced into a cell, the process comprising:

(a) providing a biological sample containing cells into which exogenous nucleic acid has been introduced, wherein the exogenous nucleic acid is in transit;

(b) subjecting the cells to an *in situ* immunohistochemistry procedure which comprises contacting the cells with an antibody that specifically binds to an Exocyst complex or a sec 3 protein; and

(c) visualizing the distribution of Exocyst complex or sec 3 antibody in said cells.

27. (new) The process according to claim 26 that further comprises

(d) visualizing the distribution of the nucleic acid within said cells.

28. (new) The process according to claim 26 that further comprises

(d) determining whether the exogenous nucleic acid is in the cytoplasm or the nucleus.

29. (new) The process according to claim 26 that further comprises determining the efficiency of delivery of the nucleic acid into the nucleus, by measuring the ratio of the amount of the exogenous nucleic acid in the nucleus to the amount of the exogenous nucleic acid in the cytoplasm.

30. (new) The process according to claim 29, in which the amount of the nucleic acid in the cytoplasm and in the nucleus is determined by measuring the amount of an Exocyst complex or a sec 3 protein located in the cytoplasm and in the nucleus.

31. (new) The process according to claim 26, in which the cell is a plant cell and the sec 3 protein is VDI.

32. A process for determining the optimum parameters for obtaining a desired copy number of exogenous nucleic acid introduced into the cell, the process comprising:

- (a) culturing a cell under a set of parameters;
- (b) measuring the amount of an Exocyst complex or a sec 3 protein that is expressed after the cell has been cultured under said set of parameters; and
- (c) determining the set of parameters under which the amount of an Exocyst complex or a sec 3 protein is maximized.

33. (new) The process of claim 32, in which the cell is a plant cell and the sec 3 protein is VDI.

34. (new) The process according to claim 32, in which the time of culture of said cells under said set of parameters is also a measured parameter.

35. (new) A process for determining the proportion of cells competent to receive exogenous nucleic acid, the process comprising:

- (a) introducing an exogenous nucleic acid to a portion of a population of cells;
- (b) visualizing the co-localization of the exogenous nucleic acid with an Exocyst complex or a sec 3 protein in cells of said population of cells; and

(c) determining the number of cells in which the exogenous nucleic acid is co-localized as a proportion of the population of cells, wherein said proportion is the proportion of cells of the population competent to receive the exogenous nucleic acid.

36. (new) A process for identifying a molecular marker associated with the competency of a cell to be transformed by exogenous DNA, comprising:

- (a) introducing an exogenous DNA to the cell;
- (b) monitoring the localization of the exogenous DNA in said cell;
- (c) monitoring the localization of a protein candidate for said molecular marker with an antibody that specifically binds to said protein; and
- (d) determining whether the protein co-localizes with the exogenous DNA in transit to the nucleus;

wherein co-localization of the exogenous DNA in transit with the protein indicates that the antigen is a molecular marker associated with transformation competency.